

REMARKS

Claims 11 and 22 have been amended, and claim 12 has been canceled. Therefore, claims 1-11 and 13-31 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Section 102 Rejections:

The Examiner rejected claims 1, 4, 5, 7, 8, 11, 15, 16, 18, 19, 22, 25, 26, 28 and 29 under 35 U.S.C. § 102(e) as being anticipated by Kowert (U.S. Patent 5,649,129) (hereinafter, "Kowert"). The Examiner rejected claims 1, 4, 5, 7, 11, 15, 16, 18, 25, 26 and 28 under 35 U.S.C. § 102(b) as being anticipated by Gronlund et al. (U.S. Patent 5,737,520) (hereinafter, "Gronlund"). Applicants traverse these rejections and submit that these claims are not anticipated by either Kowert or Gronlund, as set forth in greater detail below.

Neither Kowert nor Gronlund teach or suggest all of the limitations of Applicants' claim 1. Specifically, neither reference teaches or suggests a system including data capture logic configured to capture data events from a nondeterministic data bus; a system memory including a plurality of addressable locations, wherein a subset of the plurality of addressable locations is configured as a data event buffer; a direct memory access (DMA) transfer engine coupled to the data capture logic and to the system memory and configured to perform a DMA transfer operation of the captured data events from the data capture logic to a region of the data event buffer as portions of the captured data events become available from the data capture logic; and an application configured to retrieve captured data events from the region of the data event buffer and to display the retrieved data events substantially in real time with respect to the occurrence of the corresponding captured data events on the nondeterministic data bus.

Kowert is directed primarily to the capture and storage of events from a data acquisition instrumentation bus such as the IEEE-488 General Purpose Interface Bus

(GPIO). Kowert specifically discloses that a captured data event occurring on a GPIO bus may be assigned a timestamp value corresponding to a time at which the event was captured (e.g., Kowert, col. 13, line 48 – col. 14, line 55). However, the assignment of timestamp values to captured data events does not entail that the data events are displayed substantially in real time with respect to their occurrence on a nondeterministic data bus, as required by claim 1. Timestamp values may allow the order of captured data events to be preserved, such that they may be displayed in the order they were captured. However, there is no necessary connection between the assignment of timestamps to data events and the manner in which the data events are displayed. Kowert does not specifically disclose an application configured to retrieve captured data events from a region of a data event buffer and to display the retrieved data events substantially in real time with respect to the occurrence of the corresponding captured data events on a nondeterministic data bus. Thus, Kowert cannot be said to anticipate claim 1.

Gronlund is directed primarily to the correlation of memory events that may occur on a memory bus with one another for the purpose of detecting and isolating data corruption failures (Gronlund, Abstract). Gronlund discloses that the memory events that may be observed and captured may include DMA transfer events (Gronlund, col. 14, lines 52-63 and col. 15, lines 34-49). However, capture of a DMA transfer event occurring on a bus is entirely distinct from and in no way suggestive of a DMA transfer engine transferring a captured data event from data capture logic to a region of a data event buffer, as required by claim 1. That is, Gronlund discloses DMA transfer events as the possible object of data capture, and does not in any way disclose that, once captured, DMA transfer events may themselves be transferred by a DMA transfer engine to a data event buffer. Gronlund operates at a completely different level of scope than the limitations recited in Applicants' claim 1.

Moreover, Gronlund neither teaches nor suggests that captured data events are displayed substantially in real time with respect to their occurrence on a nondeterministic data bus. Gronlund makes no mention whatsoever of the display of captured events occurring in real time, and in fact strongly suggests the opposite. Specifically, in FIG. 6,

Gronlund teaches that, as shown in block 608 and described at col. 10, lines 15-36, captured memory events are processed to determine address ranges. In FIG. 9 and at col. 10, lines 37-50, Gronlund discloses that this processing includes sorting of multiple captured data values in ascending order of address value. However, this processing of multiple captured data events occurs before any resultant display occurs in blocks 614 and 616 of FIG. 6. Thus, not only does Gronlund fail to disclose that captured data events are displayed substantially in real time with their occurrence, but in fact suggests that multiple events are aggregated and processed before the results of the processing are concurrently displayed. However, the concurrent display of multiple events occurring at different times is precisely the opposite of display of events in substantially real time with respect to their occurrence.

Moreover, Gronlund does not teach that the captured events are themselves displayed, as recited in claim 1. Rather, as shown in blocks 614 and 616 of FIG. 6 and described at col. 14, lines 1-51, Gronlund discloses the display of representations of data buffers that summarize and reflect the effect of the captured events on memory state. This is in no way equivalent to the display of the events themselves.

Applicants note that anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. M.P.E.P 2131; *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). The identical invention must be shown in as complete detail as is contained in the claims. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). For at least the reasons given above, neither Kowert nor Gronlund can be said to anticipate claim 1. A similar argument applies to independent claims 11 and 22, which recite limitations similar to those of claim 1.

Section 103(a) Rejections:

The Examiner rejected claims 2, 3, 13, 14, 23 and 24 under 35 U.S.C. § 103(a) as being unpatentable over Kowert, claims 1-7, 9-18, 20-28 and 31 as being unpatentable

over Smith (U.S. Patent 5,457,694) (hereinafter, "Smith") and Masiewicz et al. (U.S. Patent 5,784,390) (hereinafter, "Masiewicz").

With reference to claims 2, 3, 13, 14, 23 and 24, the Examiner states that Kowert does not disclose the limitation where the data event buffer is circular or linear, but that "one of ordinary skill would readily recognize that a circular or linear buffer is well known in the art, thereby making use of these types of well known buffers obvious to one of ordinary skill." The Examiner makes a similar comment with respect to the Smith and Masiewicz references. Applicants traverse the Examiner's statements.

These features may be well known in other contexts. However, as the Federal Circuit stated in *In re Kotzab*, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000):

Most if not all inventions arise from a combination of old elements. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention.

Thus, the Examiner's assertion that circular and linear data event buffers are well known does not establish that the prior art teaches Applicants' specifically claimed application of these elements in combination with the other claimed elements. Moreover, as the Court of Appeals for the Federal Circuit recently explained in *In re Sang Su Lee*, Docket No. 00-1158 (Fed. Cir. January 18, 2002), conclusory statements such as those provided by the Examiner that a claim limitation is well known or common knowledge do not fulfill the Examiner's obligation. "Deficiencies of the cited references cannot be remedied by the [Examiner's] general conclusions about what is 'basic knowledge' or 'common sense.'" *In re Zurko*, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). "Common knowledge and common sense ... do not substitute for authority." *In re San Su Lee*. Common knowledge "does not in and of itself make it so" absent evidence of such knowledge. *Smiths Industries Medical Systems, Inc. v. Vital Signs, Inc.*, 51 USPQ2d 1415, 1421 (Fed. Cir. 1999). Thus, Applicants submit that the rejection of these claims is improper.

With respect to claims 9, 20 and 30, the Examiner states that "Kowert teaches having a sample index value for the captured data events, therefore, it would have been

obvious that transmissions related to the sample index value is performed via a DMA transfer.” Notwithstanding the fact that the Examiner has failed to provide any support for this assertion, and making reference to the comments in the previous paragraph, Applicants fail to discern any necessary connection between a sample index value and a DMA transfer. Moreover, Applicants note that claims 9, 20 and 30 recited additional limitations with respect to pausing DMA transfer activity dependent upon a sample index value, which behavior is neither disclosed nor suggested by Kowert.

Applicants submit that Smith in view of Masiewicz fails to teach or suggest the limitations of claim 1. Specifically, these references fail to teach or suggest a system including data capture logic configured to capture data events from a nondeterministic data bus; a system memory including a plurality of addressable locations, wherein a subset of the plurality of addressable locations is configured as a data event buffer; a direct memory access (DMA) transfer engine coupled to the data capture logic and to the system memory and configured to perform a DMA transfer operation of the captured data events from the data capture logic to a region of the data event buffer as portions of the captured data events become available from the data capture logic; and an application configured to retrieve captured data events from the region of the data event buffer and to display the retrieved data events substantially in real time with respect to the occurrence of the corresponding captured data events on the nondeterministic data bus.

Smith discloses that DMA transfer events may occur between a computer system 101 and a data storage device 103 via an ATA bus 102 (e.g., Smith, FIG. 5, col. 6, lines 8-11 and col. 14, line 41 – col. 15, line 29). However, Smith does not disclose in any way that captured events may themselves be transferred by a DMA transfer engine. As argued above with respect to Gronlund, capture of a DMA transfer event occurring on a bus is entirely distinct from and in no way suggestive of a DMA transfer engine transferring a captured data event from data capture logic to a region of a data event buffer, as required by claim 1. Masiewicz also fails to teach or suggest this limitation. In fact, Applicants note that the Examiner cited Masiewicz in support of a limitation regarding capture buffer overflow. However, this limitation as well as the Examiner’s

statement of a motivation to combine Masiewicz with Smith, which also refers to capture buffer overflow, have nothing to do with any limitation recited in claim 1. Applicants therefore submit that the rejection is unsupported by the cited art.

Applicants further note that numerous ones of the dependent claims recite additional features not taught or suggested by any of the cited references taken individually or in any combination. However, as the independent claims have been shown to be distinguishable, no further discussion of the dependent claims is necessary at this time.

CONCLUSION

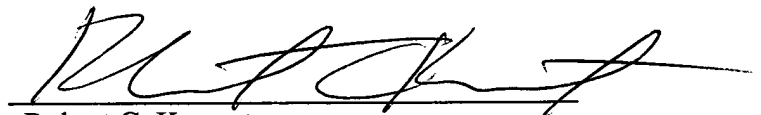
Applicants submit the application is in condition for allowance, and notice to that effect is respectfully requested.

If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above-referenced application from becoming abandoned, Applicants hereby petition for such an extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5150-84100/RCK.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Other:

Respectfully submitted,



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